REMARKS

Claims 1-24 are pending in this application. Claims 1-24 were rejected in the Office Action dated 18 December 2003 ("Office Action"). Applicants have amended claims 1, 2, 23 and 24 in order to more particularly and completely claim the present invention. No new matter has been introduced. Reconsideration and allowance of claims 1-24 is hereby requested.

In the Office Action, the Examiner rejected claims 1-24 under 35 U.S.C. 102 (e) as being anticipated by US Patent No. 6,625,541 to Shenoy et al. (hereinafter "Shenoy et al.").

Shenoy et al. discloses methods for downhole waveform tracking and sonic labeling, by employing tracking algorithms and Bayesian analysis to classify STC waveforms. However, in the methods disclosed in Shenoy et al. a classification step is performed separately at each depth (or frame). For example, at col. 17 lines 33-37, Shenoy et al. discloses with respect to the preferred classification algorithm:

> "*At each frame*, different hypotheses, corresponding to different possible classifications of the tracks at the frame are enumerated. The posterior probabilities of the hypotheses for the frame are evaluated, and the most probable hypotheses is selected to classify the tracks."

Similarly, at col. 18 lines 1-4, Shenoy et al. discloses:

> "As mentioned above, *at each frame*, hypotheses accounting for the possible classifications of the tracks in that frame are enumerated and their posterior probabilities are calculated."

Importantly, since Shenoy et al. only discloses performing the classifying step at each frame (or depth), it is clear that Shenoy et al. fails to disclose not classifying until after tracking sonic waveform peaks received at more than two depths.

Additionally, a distinction should be drawn between classifying of *tracks* (each track comprising three or more individual waveform peaks) on the one hand, and classifying of individual waveform *peaks* (with each peak *belonging* to a particular track) on the other hand. A careful reading of Shenoy et al. reveals that the disclosed method performs classification of each individual waveform *peak*, rather than classifying a full *track*. In text of Shenoy et al., phrases such as "classify the tracks" are used, we believe the confusion arises due to fact that in that reference, the word "track" is used for both tracks of multiple peaks and the individual peaks themselves. However, it is clear from the detailed description that what it actually taking place is classifying of waveform peaks (not tracks comprising multiple peaks). For example, in col. 17, lines 58-62, Shenoy et al. states:

> "For purposes of classification, Dk is used to denote the raw track data in the kth frame. The term Dk includes the model order (the number of tracks identified in the Kth frame) as well as the *slowness*, *times*, and *semblances* for each track that has been identified."

These attributes (slowness, times, and semblances) are clearly attributes of individual peaks, rather than tracks comprising multiple peaks. Thus, it is clear that what is being classified in Shenoy et al. is in fact individual waveform peaks that belong to a track.

Claim 1, as amended, recites in part:

> "generating tracks from sonic waveform peaks received at *more than two depths*; and
> "classifying the generated *tracks*, wherein the step of classifying is not performed prior to the step of generating tracks"

In the claim language, it is now clear that the classifying step is performed on the generated *tracks*, and each *track* is generated from sonic waveform peaks received at *more than two depths*. Thus, this clearly distinguishes from Shenoy et al. that only discloses classifying the peak data for a single frame (depth).

Therefore, it is respectfully submitted that Shenoy et al. does not anticipate a method as recited in claim 1. Accordingly, it is respectfully submitted that the grounds for rejection of claim 1 be withdrawn.

The remaining independent claims also contain the same or similar limitations. In particular:

Claim 23 recites: ". . . generating *tracks* from sonic waveform peaks received *at two or more depths*; and classifying the generated tracks, wherein the step of classifying is not performed prior to the step of generating tracks"; and

Claim 24 recites: ". . . wherein said steps of classifying long tracks, small track and tracks that overlap *are not performed prior to tracking of sonic waveform peaks received at more than two depths* . . .."

Accordingly, the remaining independent claims and all of the dependent claims are not anticipated by Shenoy et al. for at least the same reasons as stated above.

In light of the above amendments and remarks, applicant believes that the present application and claims 1-24 are in proper condition for allowance. Such allowance is earnestly requested. If the Examiner is contemplating any action other than allowance of all pending claims, the Examiner is urged to contact Applicants' representative, Mr. William Wang, in Japan by telephone, fax or by using email: wwang@slb.com.

In the event that any additional fees or credits are due owing to this response, the Commissioner is hereby authorized to charge the amount necessary to cover the any fee that may be due or to credit any overpayment to Deposit Account 50-1122.

Respectfully submitted,

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